Cost Effective Land Registration of Agricultural Parcels
A Georgian Private Sector Success Story

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Abstract

Given that Georgia is in the early stages of free market stabilization, economic development, and land privatization, it is important to apply cost-effective methods for the implementation of a land registration system and cadastre across the country. Methods and strategies that utilize a low-tech., low-cost, simplified, incremental and rapid approach to system implementation are therefore considered to be in Georgia's best interest. Following these principles will support the rapid creation of the land market, allow institutions to more readily adapt to change, and allow the private sector time to mature and better position itself for the provision of land registration and cadastral services to the public and the state. Perhaps more importantly, with this approach, the financial burden on its citizens will be minimized and reforms will be much more effective and manageable for Georgia.

This paper describes the approach taken by the Booz-Allen & Hamilton Inc. USAID Land Markets Team in conducting initial registration of agricultural lands. The project objectives and principles, the nature of the system being developed, the methods and tools used, relationships with the State Department of Land Management, the approach to subcontracting, and the project management activities are all described in general terms.

Introduction

The principle objective of the USAID Land Markets Project in Georgia is to register private land ownership rights using a streamlined, cost-effective approach to surveying, mapping, documentation, and registration using basic field techniques proven technology and local private sector specialists operating under performance-based contracts. This approach is considered to best support the initial development of land markets in Georgia. In addition to the initial registration activity the project works to encourage and stimulate the development of a secondary land market for both enterprise and agricultural lands and to streamline the legal and regulatory framework in support of land reform. It also provides public education in support of land reform and analyses opportunities to privatize state-owned agricultural land

The key cost-benefit and success factors for Georgia in the early years of cadastre and land registration system implementation which best support land market creation can be summarized as follows:

1. Low cost methods for data collection necessary to establish a functioning system as soon as possible.
2. Use of basic semi-automated techniques and equipment to ensure efficient data collection but at a minimal cost.
3. Involve as many local nationals in all processes of implementation as possible to promote expertise and knowledge amongst a large group of specialist
4. Utilize existing equipment to the largest extent to minimize capital investment costs and learning curves for data collection
5. Make use of low cost or existing mapping for geographical referencing of parcels
6. Set up an efficient paper based system supported by low-cost computer technology for data collection, document production and system maintenance.
7. Simplify registration office processes for maximum efficiency and minimal cost and ensure that public user services are given top priority.
8. Ensure that data collected and systems established are such that upgrading time and cost will be minimized
9. Promote institutional reform driven by system and user requirements and minimize complicated re-structuring in the early years
10. Ensure the establishment and use of simple, clear, and complete standards, regulations and policies and provide for efficient and transparent mechanisms to modify them as necessary to support system operation and maintenance.

The project commenced in October 1997 as part of a comprehensive market reform program for Georgia. The original objective of the project was to support the privatization of urban industrial land and to develop registration and titling procedures and included:

- Assisting the Georgia State Department of Land Management (SDLM) and other government bodies to form and develop the legal and regulatory framework for land privatization and registration;
- Developing and establishing a land registration system;
- Undertaking a pilot project to privatize enterprise land associated with a number of companies and to select a number of enterprises for pilot land sales; and

- Constituency building and provision of public education related to land privatization.

To date the USAID Land Markets Team has assisted more than 5000 enterprises to acquire ownership to the land associated with them. Regional teams with the project have now transformed into private real estate companies working under subcontract to Booz-Allen & Hamilton Inc. and will continue to support the privatization of urban-industrial land and to assist commercial landowners to mortgage and re-sell their properties.

Since July of 1999 the project's emphasis has gradually shifted toward the registration of agricultural land in possession of private citizens. In May of 1999 President Shevardnadze issued Decree No. 327 which allowed for the streamlining of the initial registration process for agricultural lands. To date a number of small Georgian enterprises have been working on a subcontract basis to the USAID contractor and employing more than 500 local nationals have assisted SDLM with the registration of approximately 330,000 agricultural land parcels and the issuance of registration certificates to the private owners in 20 Rayons. This work was completed during a 5 month period from August to December 1999..

The initial registration of agricultural lands involves the field survey of the land parcel by specialists employed by subcontractors using low-cost basic survey techniques, the preparation of all the necessary registration documents using basic computer technology and the submission of these documents to local Registrars for the registration of ownership and the issuance of registration certificates to landowners.

The following summarizes the proposed work to be carried out in 2000:

1. Continued support for the privatizaton and registration of enterprise land plots and re-sales, mortgaging, and registration of privately owned agricultural and enterprise land plots – including hands-on training to SDLM and subcontractors on document preparation, office and field work, and registration;

2. Continued surveying and land registration of previously allocated agricultural land throughout all regions of Georgia bringing the total registrations to 1,000,000 parcels by 15 September 2000;
    - Work will be conducted by approximately 30 subcontractors and 600 local staff across Georgia in approximately 40 Rayons,
    - Simplified low-cost surveying techniques will continue to be employed by subcontractors who will visit all parcels to conduct the necessary boundary measurements,
    - Registration documents (Registration Cards, Plans, Maps, and Reg. Certificates) will be prepared by the subcontractors and submitted to local registrars for initial registration,
    - Parcels will be geographically referenced to existing topographic maps or aerial photography where available.

3. Preliminary work on a program to privatize state-owned agricultural land including the preparation of a strategy document, draft legislation and conducting

work in a pilot study area for privatizing the remaining agricultural land in Georgia;

4. Continued provision of public education / public relations support for privatization and other transactions in land including the preparation and implementation of a public education strategy;

5. Streamlining the legal regulatory framework by proposing modifications to existing decrees, regulations, laws or policies including draft legislation for the privatization of agricultural land as well as the operation of legal advisory offices in Parliament and the Chancellery.

Nature of Agricultural Land Registration in Georgia

As a result of the land reform program of 1992 approximately 1.0 million households were given rights to land across Georgia. This included both residential and agricultural lands. Depending on the category of the individual (farmer, village dweller or city dweller) from 1 to 4 parcels were transferred from the State to citizens. It is estimated that approximately 3.0 million parcels in the land reform fund will have to be registered and registration certificates issued to landowners in Georgia over the next few years.

The nature of the registration specifies that the household owns a parcel jointly and the parcel(s) are registered in the name of the head of the household. Very few agricultural parcels are registered in individual ownership. Registration certificates are issued for each individual parcel to the head of the household.

The direct cost to register a parcel and issue a registration certificate to a landowner is approximately $1.25. This includes the survey of the parcel, preparation of the registration documents, and all the necessary supplies to produce these documents. If project management and overhead are included this will raise the per-parcel costs to just less than $2.00.

Cost savings are achieved by minimizing the investment in technology for conducting the work and using local expertise and labor to the fullest possible extent. Field measurement techniques are streamlined and conventional for the most part and the data processing a document production uses semi-automated simple procedures. Existing mapping is used for geographic referencing so no new survey control is established.

In order to maintain production levels and reach monthly targets members of the USAID Land Markets Team assist subcontractors in a number of ways:

- They ensure that SDLM support is provided to the subcontractor by continually monitoring that activity
- They assist the subcontractor with SDLM liaison and gaining the support and obtaining the information from local land officials
- They provide technical support to the subcontractor and his specialists both in the field and with office operations

- They respond to problems either of a technical or political nature to ensure the continuity of the work
- They assist with the production of cadastral index maps and registration journals
- They monitor the collection of registration applications as proof of issuance of registration certificates to landowners to see that the distribution is done efficiently and transparently.
- They monitor production on a weekly basis and respond quickly to work slow downs or problem areas

Technical Methodology and Specifications

Subcontractors are conducting the work in accordance with specifications provided by Booz-Allen & Hamilton pursuant to the law "On Land Registration," the Order of the State Department of Land Management No. 2-48 November 1, 1998 "On Establishing Land (Immovable Property) State Registration Agencies and Approving Public Registry (Estate Book) Maintenance Logs," Presidential Order No. 327, May 16, 1999 " On Urgent Measures for the Initial Registration of Agricultural Land Ownership Rights and Issuance of Registration Certificates to Citizens of Georgia", Order 2-20 of March 24,1999 and other normative acts.

The following materials are used by subcontractors for conducting the cadastral survey and land registration work:

a) Copies of Land Receive-Delivery Acts; (where available)
b) Large-scale topographical maps, allocation plans and other maps, plans or sketches ;
c) Copies of official Land Distribution Lists of owners or tax lists where necessary
d) Preliminary drawings of the locations of parcels allocated in the land reform process within territory or sector and include;
   - Numbers of land parcels
   - First, last and middle name of owner
   - Receive Delivery Act number issued to owner or ordinal number of household from distribution or tax list
   - Address and identification number of owner (eg. citizen identification card No., passport No., drivers license No.)
e) Documents showing the location of existing and proposed engineering structures (communication lines, gas lines, water lines, power transmission lines, etc.) protection zones, and conditions for their use;
f) Graphic materials indicating sectors and administrative blocks within the sector;
g) Other pertinent documents that provide the surveyor with information for the surveying of parcels.

For undertaking the work the cadastral survey specialist conforms to the following:

(a)-refers to the documentary evidence related to the land under survey and the land adjoining the land under survey;
(b)-carries out a thorough field investigation for the best available evidence of all lines, boundaries, and corners of the land under survey; and

(c)-gives priority to the physical boundary or border evidence as occupied by landowner.

Due to the nature and use of agricultural lands it is most often not practical to place cadastral markers or monuments at parcel corners. Often the most logical place for a marker to be planted is at a standpoint or traverse point in a protected area adjacent to the survey block corner or parcel corner. In order to preserve these markers they are referenced to other points so that they can be found easily or their position re-established if lost or destroyed. In order to minimize the cost of surveys the use of boundary markers has been limited. The use of ground feature-referenced traverse monuments and physical boundary measurements rather than extensive boundary markers has enabled a more cost-effective approach to surveys while, at the same time, ensuring the permanency of parcel boundaries for the future.

Closed traverses are run near the perimeter of each survey block and through the interior of the block where appropriate. These traverses serve as the basis for a network of survey points that can be tied to the State control survey network in the future or as future points to position using GPS techniques. If a national survey network point exists within 1.0 Km. of the block being surveyed the surveyor must make an azimuth and distance measurement from at least one block corner to the national network point and calculate coordinates for the survey block in the national system of coordinates. Because the secondary control network is not extensive in Georgia the surveyor is required to make ties from at least two survey block monuments or traverse standpoints within the block to identifiable features on existing large scale state topographic maps or features that would appear on current aerial photography. The directions of traverse lines are established using solar azimuth observations or accurate compass observations. When open traverses are used, angles and distances are measured twice.

Parcel boundaries, roads and lanes are surveyed in accordance with occupation limits using land arranger schematic drawings or allocation maps and /or Land Receive-Delivery Act sketches as a guide. Parcel boundaries are measured directly where practical or parcel corners are measured to from traverse standpoints that are tied to the survey block traverse or a survey block marker using standard survey techniques suitable for each area. Adequate measurements are made to define the land parcel, including irregular boundaries such as streams, rivers, etc, all public and private easements or protection zones such as pipelines, electric power lines, roads, servitudes and other features affecting the boundary of the parcel.

Survey blocks are positioned usually with assumed local rectangular grid coordinates. For this reason it is necessary to position the survey block in relation to its geographic location on a published state topographic map of sufficient scale to locate the approximate boundaries of the survey block. Selected ground features, identifiable on such state maps, are measured to using polar methods (angle and distance) from a survey block marker or standpoint. These features (road intersections, structures, building corners, other prominent ground features) must be recognizable on the map or a large-scale air photo. The accuracy of the scaled position from a 1:5000 topographic map is approximately 5 to 10 meters and from a 1:10,000 map approximately 10 to 20 meters. This accuracy is sufficient for the preliminary positioning of survey blocks until more precise methods of positioning can be applied in the near future.

The role of the surveyor is to show where boundaries are truly positioned on the ground but each surveyor can only do this from his interpretation of paper records and from the physical indications of boundary position on the ground. In the case of initial registration of agricultural parcels and the survey of those parcels, agreement between the paper records and the true location of these parcels on the ground seldom exists. For this reason it is the surveyors' responsibility to make the best interpretation between the two and be prepared, by reference to field journals, to substantiate his decisions in the field.

Parcel boundaries in the field are, for the most part, established from the observed limits of occupation. In ideal circumstances a fence will determine the parcel limit, but this situation occurs in the minority of cases. When a permanent feature such as a fence defines the boundary of the parcel it is duly noted in the field journal. Where fences do not exist, the limit of occupation is used to determine boundary position.

In cases where all or a portion of the parcels in a block are in shared usage scheme and no visible boundaries appear on the ground then the overall area of the block is considered when determining the area of individual parcels. In other words the surplus area in the block is proportioned equally between all parcels. Conversely any deficiency in area of the block must be balanced equally amongst all parcels. In cases where some parcel limits are visible in the block these limits are adhered to and the area balancing done always giving full consideration to occupied parcel boundaries.

In all cases the advice of land arrangers and owners is sought and considered as important evidence in determining the final boundary location.

For reasons of defending the decision of the surveyor in determining boundary location, and providing the proper evidence on which to prepare cadastral plans, it is necessary to document boundary information in field journals. For each survey, field notes are prepared and contain a clear and detailed account of everything found, observed and done in the field in the course of and relevant to the survey

LandCad is a software package that is used to produce the final cadastral plans and cadastral map data for the production of cadastral maps required for initial registration. Survey information obtained in the field is input and processed in LandCad to create graphic files for producing the parcel plans and maps. LandCad files are reformatted and used in a second software package (PC Survey) to add text and other ground feature information to produce the final cadastral index maps for registration.

In order to print parcel graphic information for registration documents the above files are accessed by a USAID Land Markets Team custom designed land registration software (LandReg) so that cadastral plans and registration certificate sketches can be printed from one software. A print command from the LandReg software will retrieve the necessary LandCad files in the same project directory and print either the cadastral plan or the sketch for the registration certificate. Various database reports are also produced from this software to manage the issuance of Registration Certificates and collection of Registration Applications as well as any other reports necessary for management and use of registration information. It is also used to produce the main Registrar's Journal pages.

The following summarizes the functions that the LandReg software performs:

- Creating a new database of registration records - individual databases are set up by survey block. They are later merged to produce reports, lists and journals.

- Entering parcel, owner and other rights information for registration cards - the primary function is the entry of the information necessary for the parcel card production

- Editing registration card data - once data is entered and changes are required these records can be edited and the database updated.

- Finding and searching registration information - most individual registration record fields (information attributes) can be searched and displayed for better information management.

- Sorting and reporting information from the database - for the production of lists and reports the registration records can be sorted in a variety of ways to produce the necessary data.

- Generating registration documents both from the registration database and from associated parcel graphic files from LandCad - once a survey block is complete the registration documents can be printed from LandReg user commands. This includes the production of Cadastral Plans and sketches for Certificates from LandCad files.

- Producing Registrar's Journal - once application registration numbers are added and registration dates are assigned this information is added to the registration database and a registrar's journal is generated.

Training was provided to the subcontractors and their staff using a just-in-time and on-the-job approach in four primary areas: firstly, the survey specialists were briefed on the field specifications and field techniques for optimum efficiency for surveys; secondly LandCad software training was provided to selected survey specialists and office operators; thirdly LandReg software training was provided to subcontractor office staff and SDLM staff and; fourthly registration office procedure training was provided to subcontractor’s office staff and SDLM staff.

Private Sector Specialists

There are currently no legal provisions in Georgia for licensing cadastral specialists. Although the SDLM has this responsibility as part for their mandate to date this authority has not been clearly defined or asserted and for the purposes of initial registration of agricultural lands this licensing is not a requirement.

Although the quality of the work is acceptable there is a need to form a self regulating organization of cadastral specialists that will be responsible for setting and enforcing standards, undertaking transparent and fair licensing, qualification of specialists, and

enforcing standards of practice in the public interest. The Land Markets Project will investigate mechanisms to accomplish this during the present task while ensuring no disruption to present cadastral works.

In order undertake this work the USAID Land Markets Team use a streamlined tendering process that invites proposals from specialists that have the academic qualifications and/or experience in land reform works. The tender proposal allows for the rapid assessment of experience, academic qualification, project management ability, local knowledge, mobilization capability and tests the potential subcontractor's understanding of the project specifications.

Once selected the subcontractor is provided with the necessary equipment (both field and office tools) to undertake the work as part of a mobilization advance on the subcontract agreement. The cost of this equipment is recovered from invoiced amounts during the performance period of the subcontract. Again the field equipment is very conventional surveying equipment available locally at very low cost. Some low-cost electronic measuring equipment was identified and for those subcontractors that demonstrated the production advantages in using the equipment they were assisted with the purchase of this equipment through the same mobilization process. A minimum of computer equipment was provided to subcontractors and depending on the size of the subcontract this equipment varied from 1 to 3 low-end PC's with the necessary software and printing capability for the production of registration documents.

Subcontractors are compensated on a per parcel basis for six primary deliverables:

1. Field Survey
2. Preparation of Registration Card
3. Preparation of Cadastral Plan
4. Preparation and proof of issue of Registration Certificate
5. Preparation and registration of Cadastral Index Map
6. Preparation and approval of Registrar's Journal

To ensure the proper registration of the necessary documents it is the subcontractor's responsibility to verify that the documents have been registered and registration certificates are issued by the Registrar. The USAID Land Markets Team follow-up and obtain sign-off by SDLM, subcontractors, Land Markets Team officers before any invoices are paid for work completed.

State Department of Land Management

The State Department of Land Management is responsible for the management of surveys conducted for cadastral purposes and for land cadastre activities and exerting control over those works. Again the specific responsibilities in this regard have not been defined in detail or enforced properly to date but the ultimate legal responsibility for cadastral survey management ultimately rests with the SDLM.

The following process is followed by the USAID Land Markets Team in the final selection of Rayons for conducting the work:

1. The Rayon SDLM organization and the local mayor's attitude is assessed for the level of support for the project.
2. The number of Land Receive Delivery Act (RDA) documents prepared in Rayon are determined
3. Quality and completeness of existing land owner information is assessed
4. Quality and completeness of land allocation pre-cadastre sketch maps is assessed
5. If the above assessment is positive a subcontractor is selected through a tendering process to start work in the Rayon
6. Land Market Team hold meetings with SDLM officials and local mayor to provide an explanation of project activities and critical information requirements and support necessary for project success.
7. Land arrangers are advised by the Land Market Team on how to present the parcel and ownership information to the subcontractor
8. The subcontractor establishes a project office adjacent to the offices of SDLM and commences work.

With the exception of its role in registration of ownership rights the SDLM does not initiate or participate, on a widespread basis, in the implementation of initial registration of agricultural parcels other than in a few foreign donor pilot projects. To date the success of these state-driven projects have achieved little notable success and per-parcel costs are substantially higher than those of the USAID project. The results achieved by the USAID private-sector-driven agricultural land registration project have far exceeded the results of any other land reform project in Georgia to date. The approach applied in other state-driven projects such as the World Bank project have applied a more high-tech mapping oriented approach and conducted limited field measurements compared to the USAID approach. It is therefore not possible to make a realistic comparison of production differences of State vs. private sector regarding land registration. SDLM are involved in some sporadic registration processes but in general the volumes are very low. In the opinion of the writer after one year of exposure to the SDLM institution it is recommended that they restrict their responsibility to managing the land registration responsibility and leave the cadastral works and systematic land registration documentation to the private sector working on performance-based contracts.

Office Compilation of Registration Documents

As described previously there are five primary documents required for initial registration. The Registration Card, Cadastral Plan, and Registration Certificate are all printed from the LandReg software application. Data for the preparation and printing of the Cadastral Index Maps is provided by the LandCad software and the final compiling and printing performed with the PCSurvey software in a central location. Applications for Registration are presently pre-printed forms and are completed by owners at the time of receiving Registration Certificates.

When the survey block is completed the following three documents are printed;

Registration Card - two sided document which is the main parcel register

Cadastral Plan - plan of the subject parcel showing also surrounding parcels and plotted at a practical scale that allows for the easy recognition of parcel numbers and parcel dimensions.

Registration Certificate – two-sided document which is a copy of the information on the Registration Card and the Cadastral plan graphic information.

Cadastral Index Maps - printed at a central location from data supplied by the sub-contractor and returned to sub-contractor for examination prior to registration.

When printed the Registration Card, Cadastral Plan, and Registration Certificate are filed in a plastic cover folder and placed in binders by order of parcel number. An alphabetical list of owners with parcel number (parcel code) RDA number or Tax List number is also printed and provided to the Registrar along with the appropriate binders.

Once the registration numbers are known for the parcel and the applications are completed by the owner the registration number and registration date information is added to the LandReg database and provided to the Tbilisi office for the production of the Registrar's journal. These journals are then provided to the Registrar via the sub-contractor and signed by the Registrar or his delegate.

All of the above processes are conducted free of charge to the landowner for the initial registration of the parcel. A fee structure is in place for secondary transactions on the system but the law is presently under review. It has been only recently that a significant number of parcels have been registered and to date a very low number of secondary transactions have taken place on the system. These volumes are expected to grow exponentially over the next few years.

The Land Markets Project Team is in the process of formalizing registration office procedures in order to ensure standardized registry operations and to ensure the public registry is maintained current and that transactions are processed efficiently and accurately.

All of the final approval and registration is handled at the Rayon level. Some policy is set by Central SDLM but because little in the way of detailed procedures and

standards have been established by the central organization usually little interference in the initial registration process is experienced at the local level. One difficulty arises with blockages from local officials who have a vested interest in preserving the old system of land activities but constant pressure from political allies to the USAID Land Markets Project enables most of these obstacles to be dealt with in short order. There is an ongoing resistance in many Rayons by corrupt land officials against the land registration project so ongoing monitoring of blockages is necessary by the Team and its subcontractors.

The subcontractor's team presents all of the documents to the Registrar in a very organized fashion in order to minimize examination and review time for sign off and registration. The USAID Land Markets Team constantly monitor the registration process with field visits to identify problems and slow down areas and address these slow downs by discussing the problems directly with registrars, SDLM Heads and local mayors if need be to make decisions on problem resolution.

Building of legal Cadastre and Evolution of the Land Registration System

Although not yet started on a broad scale, Georgia has plans to implement a national multipurpose cadastre. Support will be provided through most donors to develop such a system. The questions still remain as to the cost-benefit and the financial and institutional strength of Georgia for implementing such a modern system at this time. None of the donors have presented valid cost-benefit arguments to date in this regard. Recently a German (KfW) 52 Million DM multipurpose cadastre project and credit has been approved by the Georgian Parliament. This project plans to produce large scale orthophoto mapping and build a seamless high-tech digital cadastre and registration system for Georgia.

The work conducted by the USAID Land Markets Project has as its primary objective land market development using cost-effective tools and techniques and local labor for land registration. The survey work, although sufficiently accurate for land registration, is not accurately integrated into a national cadastre at this time however the parcel maps created will form the building blocks for such a system. All the data is compiled in digital form (parcel maps and registration information databases) which can be easily integrated into a national system. Surveys are geographically positioned in relation to the existing state mapping.

Although the parcels registered are not presently part of a national cadastre their registered interests and parcel boundaries remain legally valid. Parcels registered reflect the proper ownership rights and general physical boundaries of the parcels. Placing new geographic coordinates on those parcel corners will not alter or diminish the registered interests. As far a protecting the boundaries this does not present a problem in Georgia. Landowners have lived by their present boundaries for many years and a system of acquiescence is in place to ensure their preservation. As the land market develops and land values increase more accurate surveys with permanent boundary markers will be conducted on land of higher value to ensure preservation of more precise boundary limits.

Initially the registration system will be paper-based but the digital support data will be maintained current. Parcel map files will be updated and database files with the registration data will be maintained. The Land Markets Team are developing a simple registration system software to handle secondary transactions. This will allow registration cards to be updated easily and reprinted if necessary and registration abstracts, reflecting active interests in a parcel, can be produced efficiently by the registrar.

The USAID Land Markets Project will continue to cooperate with other donor projects and the SDLM to build the most cost-effective and efficient land registration and cadastre for Georgia in the best interest of the public and to best support the effective development of a viable land market for the country.